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Short Communication

On the occurrence of *Asterropteryx semipunctata* Rüppell, 1830 (Gobiiformes: Gobiidae: Gobiinae), from the Gulf of Mannar, southeast coast of India

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Abstract

One specimen of *Asterropteryx semipunctata* Rüppell, 1830 (Gobiiformes: Gobiidae) was collected from Vallimunai Island, Gulf of Mannar, southeast coast of India in December 2018. The present paper reports *A. semipunctata* for the first time from the Gulf of Mannar, Tamil Nadu, southeast coast of India with morphometric and meristic characters.

Keywords: First Record, India, '*Semipunctata'* complex, Tamil Nadu

Introduction

Gobiidae is one of the widely distributed fish families with about 1895 valid species around the world (Frick *et al*., 2019). In the Indian waters, Gobiidae forms the highest species-rich family represented with 190 species and 71 genera (Gopi and Mishra, 2015). Species of the gobioid genus *Asterropteryx* Ruppell, 1830 of the subfamily Gobiinae are known as 'cheek-spine gobies' for the presence of one or more spines on preopercular angle. This genus is represented by 9 valid species globally (Allen and Erdmann, 2016) and they can be grouped into two distinct complexes, viz., '*semipunctata*' complex containing four species and '*spinosa*' complex having five species (Shibukawa and Suzuki, 2002, 2007; Allen and Erdmann, 2016). These cheek-spine gobies are usually bottom dwellers and mostly reef-associated, inhabiting sheltered coral or rocky reefs or sandy-muddy substratum with rubble patches.

Recently one interesting brightly coloured specimen of cheek-spine gobi was collected from Vallimunai Island, Gulf of Mannar, Tamil Nadu and it was later confirmed to be *Asterropteryx semipunctata* Rüppell, 1830. The present communication is intended to report *A. semipunctata,* from the Gulf of Mannar, southeast coast of India and an extension of its range within the Indian Ocean supporting its widespread nature in coral reef areas.

Material and Methods

One specimen of *A. semipunctata* was caught from coral reef region of Vallimunai Island, Gulf of Mannar Biosphere Reserve, Tamil Nadu, India on 27th December, 2018 by using hand net. After collection, the specimen was photographed in fresh condition to note colouration and the specimen was preserved in 10% formaldehyde solution for further study in laboratory. Morphometric measurements were taken to the nearest millimeter using digital calipers. The taxonomic identification was carried out following Hoese (1986), Allen and Erdmann (2012) and other relevant literature including FishBase (Froece and Pauly 2019). The specimen was deposited in Marine Biology Research Centre, Zoological Survey of India, Chennai, India.

Results

The details of morphometric observations of *Asterropteryx semipunctata* Rüppell, 1830 have been presented in Table 1 and species description of different characters are given below.

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Asterropteryx semipunctata Rüppell, 1830 (Starry goby)

1830. *Asterropteryx semipunctatus* Rüppell, *Atlas. Reise. nordl. Afrika Fische., Rothen. Meeres.*: 138, pl. 34, Figure 4 (Type locality: Massawa, Eritrea, Red Sea).

2012. *Asterropteryx semipunctata:* Allen and Erdmann, *Reef Fishes of the East Indies,* 3: 910.

Material examined: MBRC/ZSI/F.1900, 1 ex.; 35.82 mm SL; Vallimunai Island, (Latitude 9°9'16.89" N, Longitude 78°43'49.76" E), Kilakarai, Gulf of Mannar, Tamil Nadu, 27.12.2018.

Diagnostic characters: D VI+I, 10; A. I, 10; P. 17; V. I, 5; LS 24. The details of morphometric measurements were presented in Table 1. Body relatively short, compressed, body depth 31.91% in Standard Length (SL). Head compressed; head scaled except snout and inter orbital space. Head Length (HL) 34.18% in SL. Preoperculum armed with 5 short spines on edge of preopercle just above the angle. Third dorsal fin spine elongate, filamentous. Pelvic fin separate, pelvic frenum absent; caudal fin rounded; predorsal scales 8. Body covered with mostly ctenoid scales; pectoral-fin base and breast with cycloid scales; anterior part of cheek and branchiostegal membrane with cycloid scales; posterior part of cheek and operculum covered with ctenoid scales. Snout blunt, its length 19.68% in SL.

Colour: Body colour is dark brown to black; cheek reddish brown to pale brown ventrally. Operculum, abdomen, iris are dark reddish-brown in colour. First dorsal fin is covered with triangular brownish area; second dorsal fin is blackish in colour. Five rows of brilliant blue spots are on midside of the body from head to caudal peduncle and head with horizontal rows. Small dark saddles are present dorsally. The anal fin and caudal fin are scattered with blue spots; pelvic fin almost translucent (Figure 1).

Distribution: Asterropteryx semipunctata Rüppell, 1830 is widely distributed in Indo-Pacific: ranging from the Red Sea, Persian Gulf to the Hawaiian, Line, and Tuamoto Islands, north to southern Japan, south to Lord Howe and Rapa (Froese and Pauly, 2018). Along Indian coast it has been reported from Lakshadweep (Jones and Kumaran 1980) and Andaman Islands (Rao *et al.*, 1994). The present report forms its first record from the Gulf of Mannar, Tamil Nadu, along the southern east coast of India.

Figure 1. *Asterropteryx semipunctata* Rüppell, 1830 (MBRC/ZSI/F.1900).

Table 1. Morphometric measurements of *Asterropteryx semipunctata* Rüppell, 1830 from southeast coast of India

Characters	Measurements
Total length (mm)	43.61
Standard length (mm)	35.82
In % of Standard length (SL)	
Head length	34.18
Snout length	19.68
Eye diameter	10.33
Inter orbital width	2.99
Jaw length	9.84
Nape width	8.79
Maximum body depth	31.91
Body depth at 1st dorsal fin origin	30.11
Body depth at anal origin	27.58
Pre-dorsal length	31.64
Pre-pelvic length	35.01
Pre-anal length	56.60
Pre-opercular length	37.51
Post opercular length	13.64
Caudal peduncle length	19.93
Caudal peduncle depth	14.59
Length of 1st dorsal fin base	15.72
Length of 2nd dorsal fin base	25.57
Length of anal fin base	24.57
Pectoral fin length	26.30
Pelvic fin length	96.54
Caudal fin length	27.22
Pelvic fin base length	5.58
Pectoral fin base length	11.56

In % of Head length	
Snout length	19.67
Eye diameter	30.20
Inter orbital width	8.73
Jaw length	28.78

Discussion

The Indo-Pacific gobioid fish genus *Asterropteryx* Rüppell, 1830 is currently represented by 9 valid species globally (Allen and Erdmann, 2016). Shibukawa and Suzuki (2002) distinguished members of this genus into two subgroups, i.e., '*semipunctata*' complex and '*spinosa*' complex. The '*semipunctata*' complex comprises four species, *viz*., *A. atripes* (Shibukawa and Suzuki, 2002), *A. ensifera* (Bleeker, 1874), *A. semipunctata* Rüppell, 1830 and *A. striata* Allen and Munday, 1995. All these species are having characteristic brilliant blue spots along mid-body and without dark caudal spot, while they have dark phase and pale phase. *A. atripes* can be distinguished from all other species in this subgroup in having a brown or black pelvic fin (vs pale pelvic fin); a dark band from snout to caudal base in *A. atripes* and *A. striata* prominent in pale phase which has not been observed in other two species. *A. semipunctata* is closely related to *A. ensifera* but differs in proportion of body depth (3.0-3.6 vs 2.7-3.1 in *A. ensifera*) and single broad preopercular spine in later against 3-9 spines in the former (Allen and Erdmann, 2012). From the distributional point, *A. atripes* occurs from Andaman Islands eastward in western Pacific; *A. striata* in Indonesia eastward to Solomon Island and Fiji; but both *A. ensifera* and *A. semipunctata* are widely distributed in Indian Ocean and western Pacific.

Four species of this genus, i.e., *A. atripes, A. bipunctata, A. ensifera* and *A. semipunctata* are known from Andaman and Nicobar Islands (Rao *et al*., 1994; Allen and Erdmann, 2012). Jones and Kumaran (1980) gave an illustration of *A. semipunctata* from Lakshadweep Islands. This species was also reported from neighboring Sri Lanka (Munro, 2000). Further study revealed that, Koumans (1941) stated to have examined specimens from Kilakarai and Pamban (Ramnad district), but without material information. A search in the National Zoological Collection, Zoological Survey of India, Kolkata confirmed presence of 6 specimens of *A. semipunctata* from Ramnad (ZSI F5719/2) and 3 specimens from Pamban (ZSI F7166/2), those collected long back in 1913 by S.W. Kemp.

Joshi *et al.,* (2016) compiled a checklist of 1182 species of fishes from the Gulf of Mannar ecosystem, Tamil Nadu which included only 30 species in the family Gobiidae, whereas Ramesh *et al.,* (2002) gave a list of about 70 species though contains some erroneous nomenclature. Barman *et al.,* (2011) also failed to record its presence along Tamil Nadu coast. The present report confirms its occurrence in the Gulf of Mannar, Tamil Nadu. It is likely that *A. ensifera* also coexist, which need careful examination. *A. semipunctata* seems to be rare in occurrence or difficult to collect for their habit of dwelling in crevices for which for a long time it was not recorded after 1913 while the work of Ramesh *et al*., (2002) was solely based on literature and that of Joshi *et al.,* (2016) seems to be a compilation.

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